

# ***Headquarters U.S. Air Force***

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***Integrity - Service - Excellence***

## **AFMS Energy Program Update**

***Waging War On Wasteful Energy Practices***



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***Presented by***

AF Health Facilities Division  
Engineering Branch



# ***Proven Battlefield Tactics***

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- ★ Collect Up-to-date Information from field of Battle (metering)
- ★ Strategize taking aim on the Winnable Battles & Soft Targets
- ★ Send in your best War-fighters to lead the charge
- ★ Study their “Winning” Strategies
- ★ Enable Commanders who leverage precious resources you send
- ★ Reward the War-fighter’s – Motivate them to take the next hill
- ★ Other units seeing the rewards will join the battle



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# ***Energy Data Collection Advancements***

**Upgrade of Metering Cellular Transmitters have dramatically improved the quality and clarity of information coming back from the field**



- Self diagnostic
- Remote repairs
- Memory “card” SD
- 3G technology

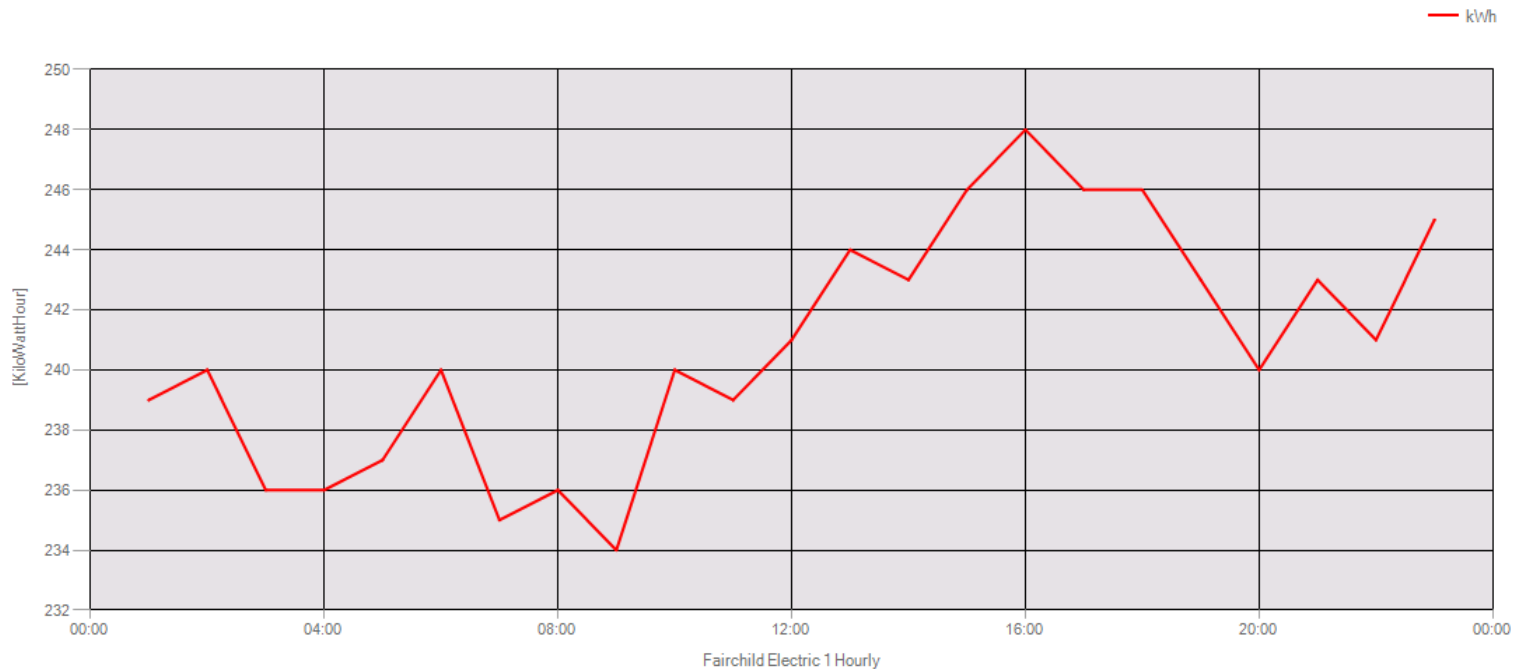


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# Energy Data Collection Advancements

## Dashboard Upgraded to provide hourly information on changing battlefield conditions

Sunday Jun 13, 2010



New Dashboards provide hourly information enabling Facility & Energy Managers to zero in on, diagnose and target energy use through the course of the business day



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# ***Energy Data Collection Challenges***

## **Utility Delivery is being Privatized**

- Private companies are changing the meters and not reconnecting our cellular meters
- Many times the new configuration is not compatible without modification of our gear
- Good news is that the change is slow in coming and we can see when the meter goes off-line

## **New DoD IA Security Requirements**

**Tighter controls are on Horizon for all Industrial Control Systems - could have devastating impact on cellular and networked metering systems**

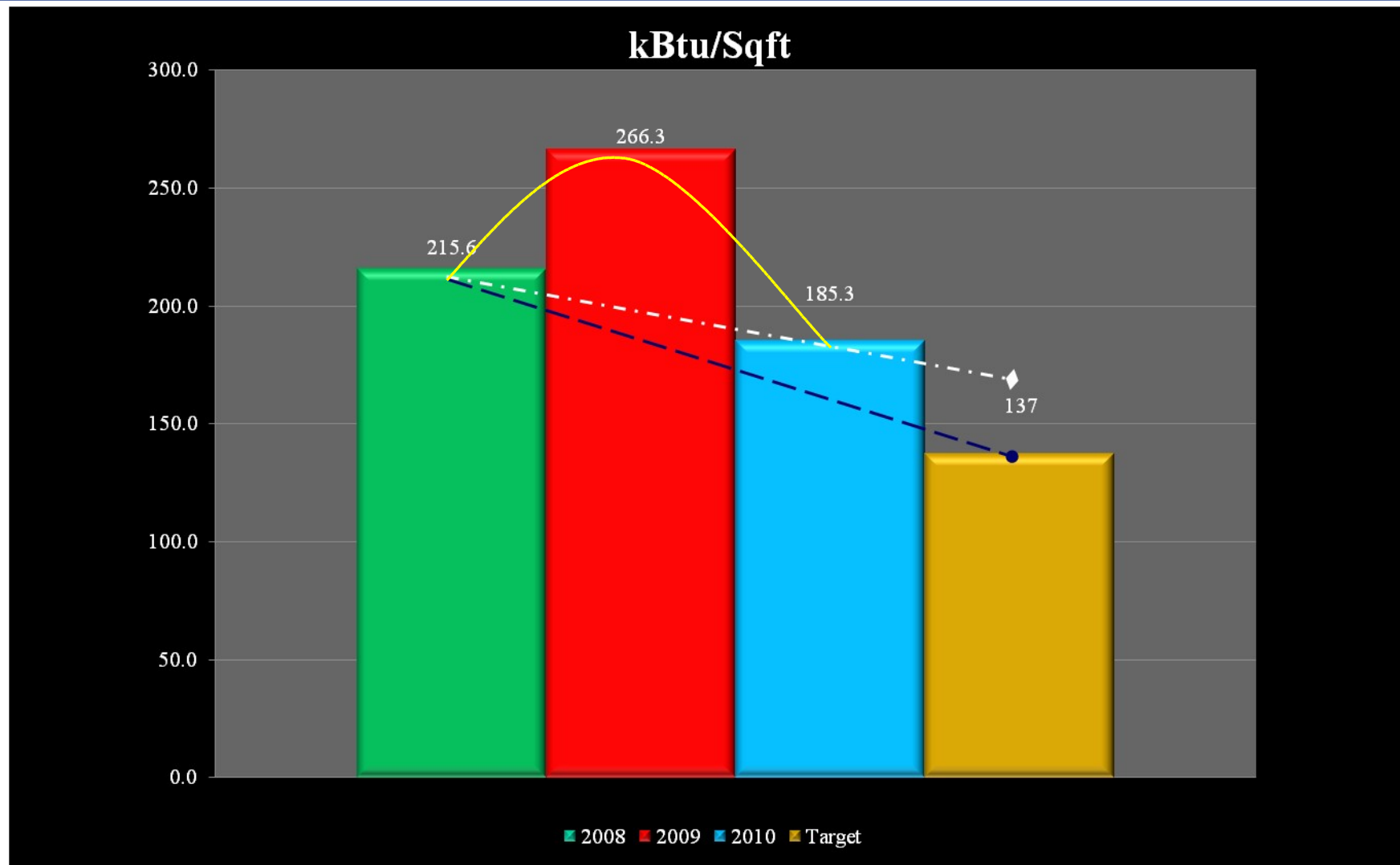




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# Enterprise Performance

## AFMS Energy Intensity as a Whole

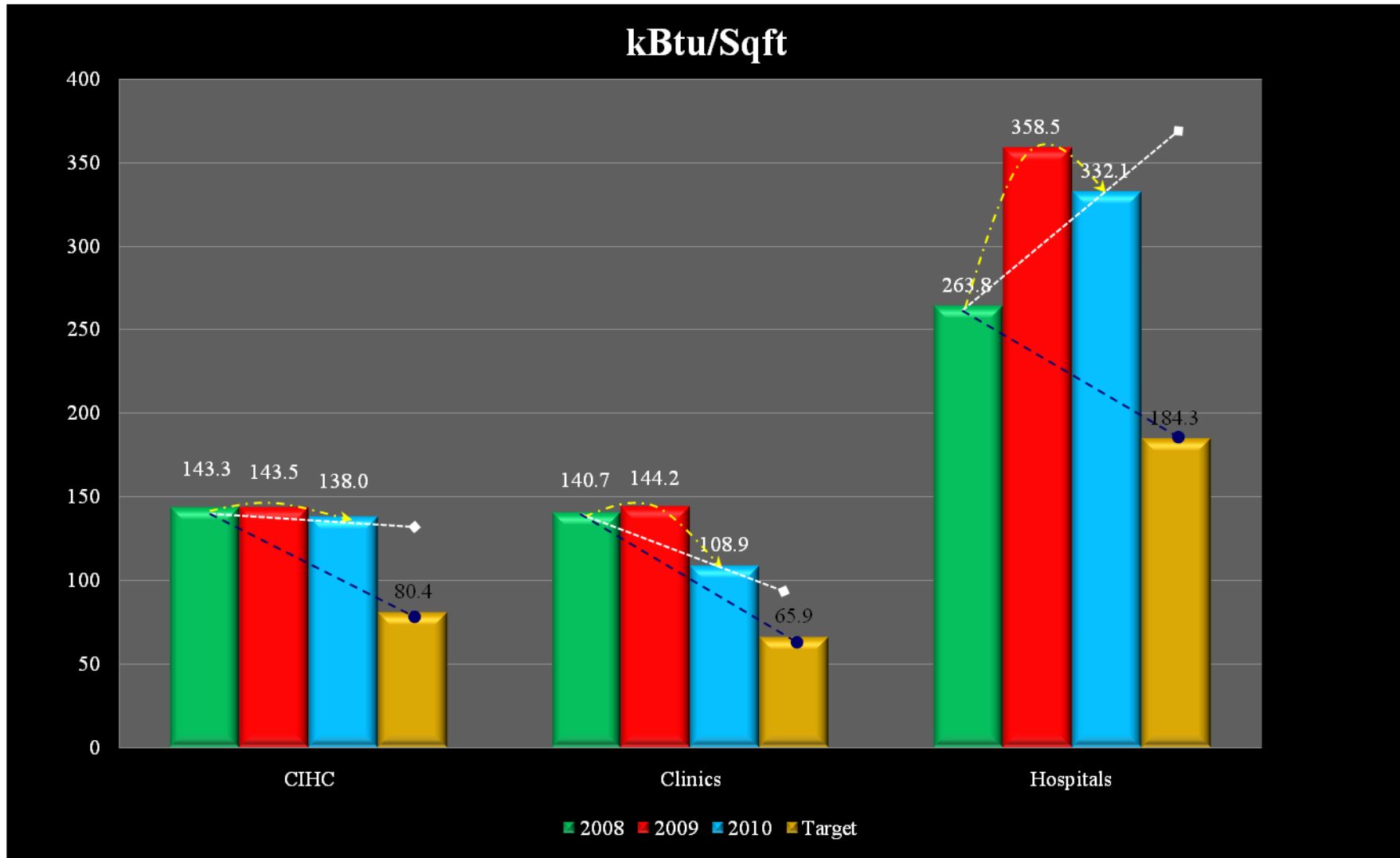




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# Enterprise Performance

## Energy Intensity by Peer Group

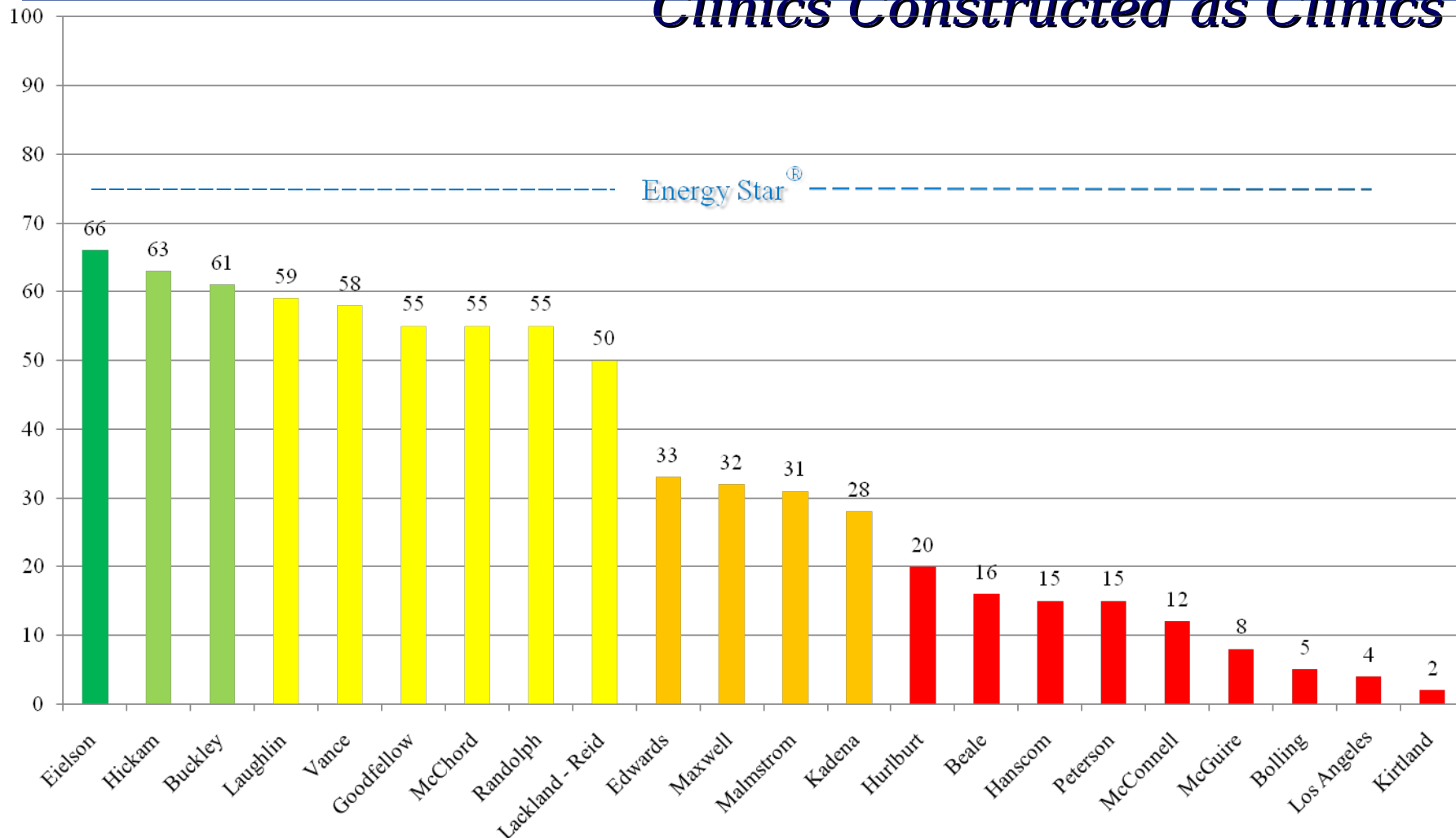




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# ***Energy Star Scores***

## ***Clinics Constructed as Clinics***



*As of May 2010*

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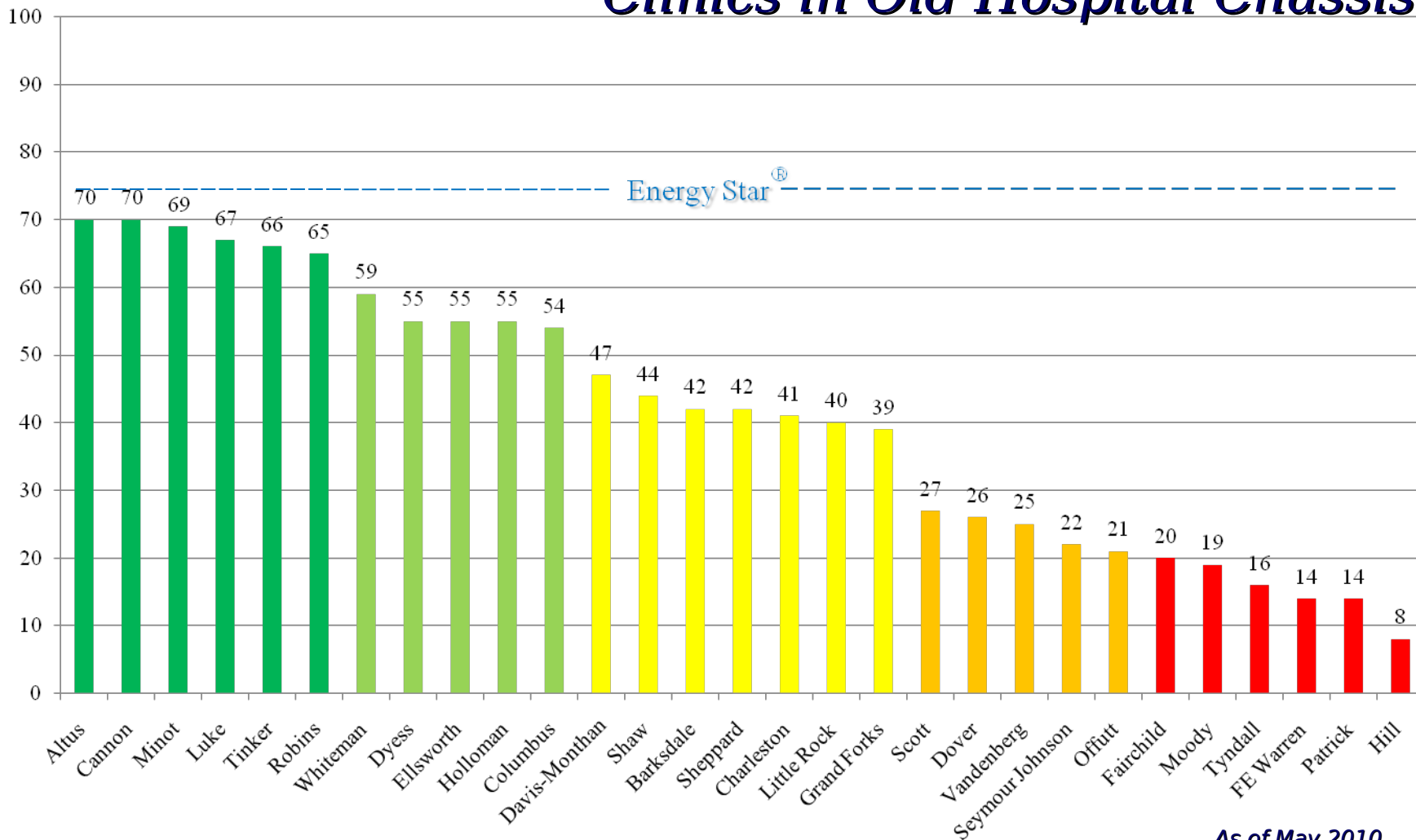




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# Energy Star Scores

## Clinics in Old Hospital Chassis



As of May 2010

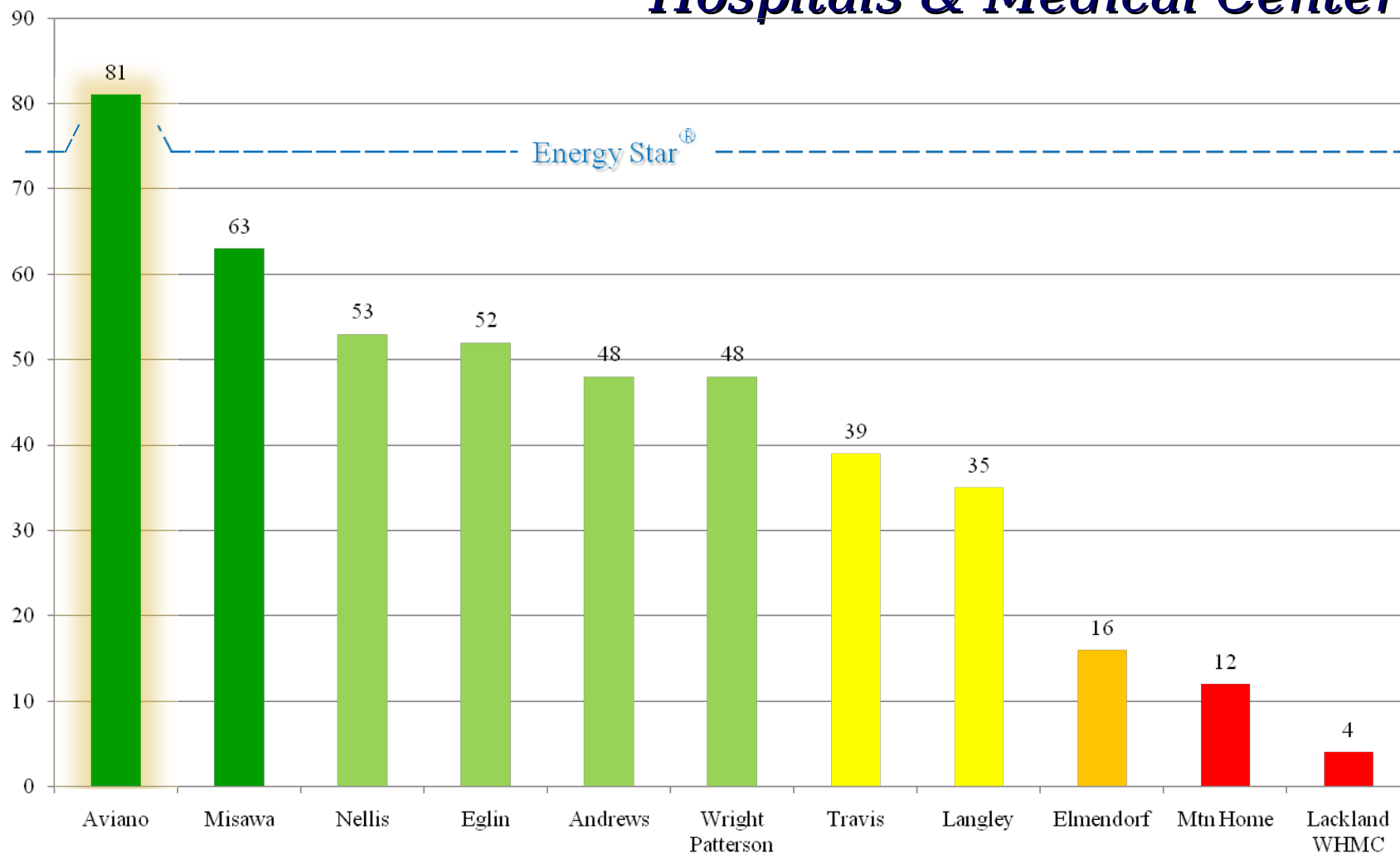
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# ***Energy Star Scores***

## ***Hospitals & Medical Centers***



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# ***Program Status***

- ★ On the whole, as an enterprise we are improving but are not on vector with targets set forth by Executive Order and DoD
- ★ Throwing money and new technologies at it is not the “Silver Bullet” as a change in culture is needed (Commanders and People have the greatest impact to conservation)
- ★ Meters have paid for themselves many times over by providing us with visibility of both the very bad and very good.
- ★ We focus our resources and funds on those MDG who have demonstrated they will put them to efficient use



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# *Case Study - Davis-Monthan*

Baseline Score - 8

Current Score - 47



## **Energy Saving Strategies**

- FY07 - Convert 3 AHU from 100% OA to R/A
- FY08 - Replace Roof
- Lighting - motion sensors
- Replace ADA door sensor to wall strike plate
- DOD set points and night time set-back control

“...we will continue to improve as we find better methods.”



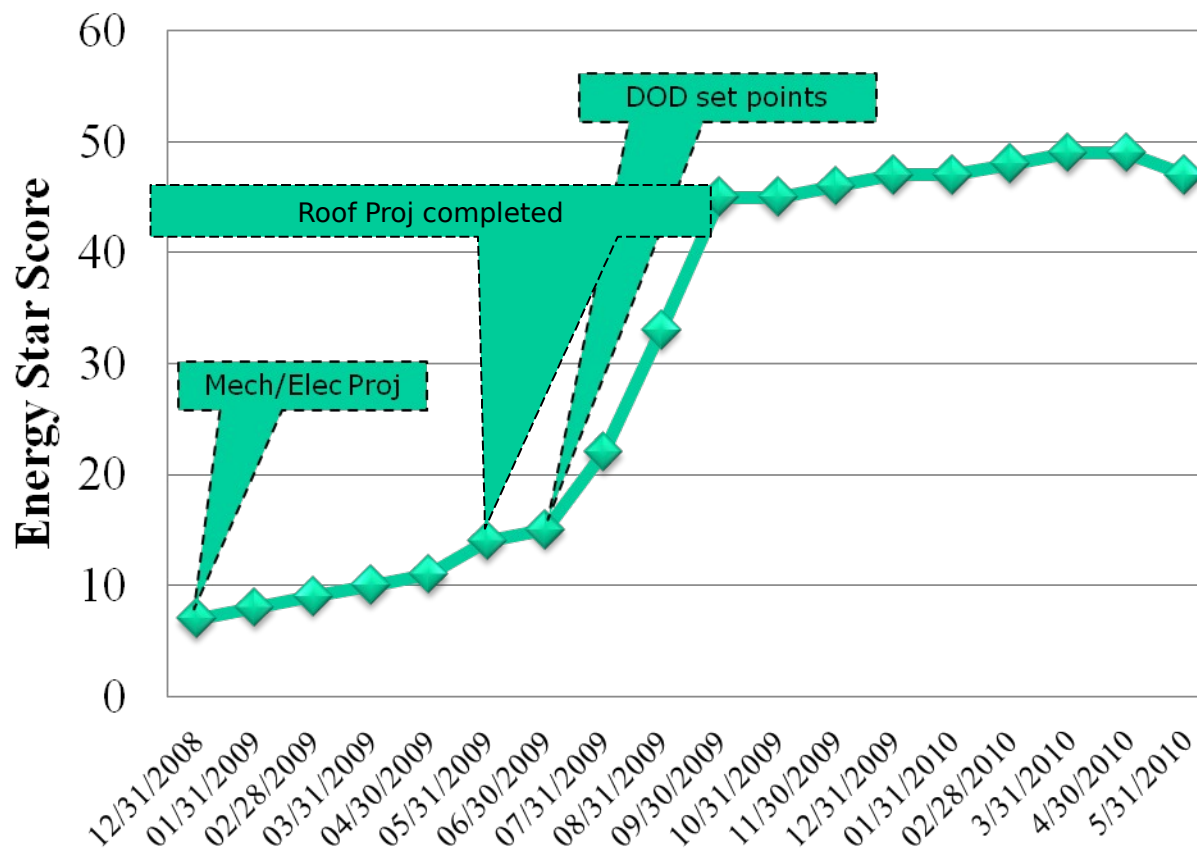
# Case Study - Davis - Monthan

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## Results:

89.5 kBtu / sq ft savings

### Davis Monthan Clinic Energy Star Performance





# *Case Study - Aviano AB Italy*

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- ★ Commander actively engaged in Energy Conservation
- ★ Maintenance contractor was dedicated to optimizing . . . not just sustaining
- ★ Monitoring and de-lamping interior illumination
- ★ Raising the chilled water set point
- ★ Upgrading direct digital control (DDC)
- ★ Night and Weekend Setbacks
- ★ Adhering to DOD prescribed set points
- ★ Installed light sensors in restrooms
- ★ Waterside Economizer



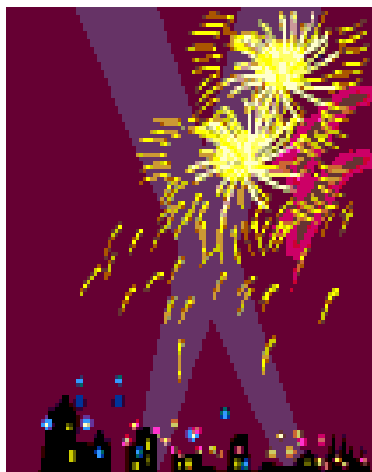


# Case Study - Aviano AB Italy

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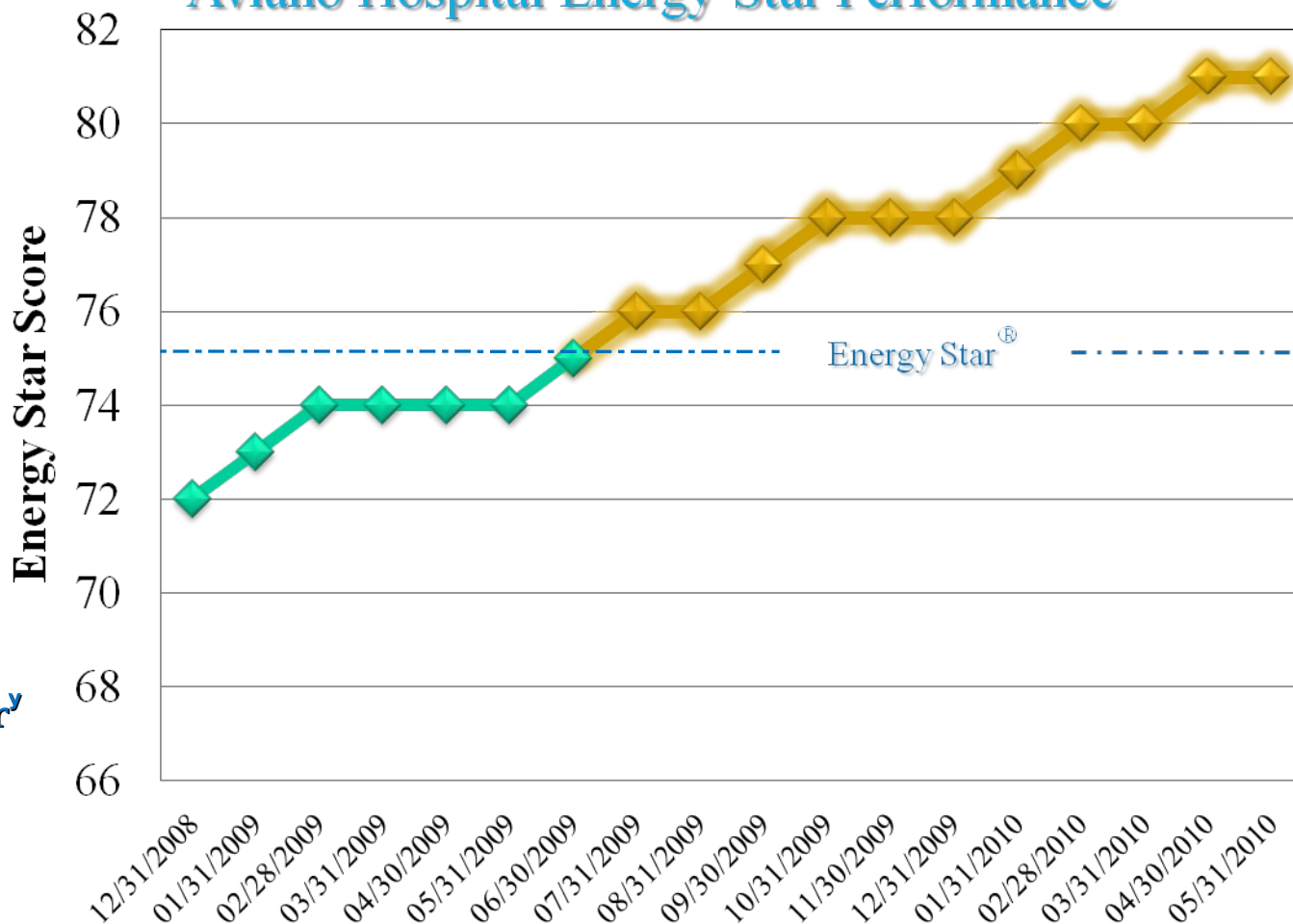
## Results:

32.7 kBtu / sq ft savings



**2010 Energy Star<sup>®</sup>  
Recipient**

## Aviano Hospital Energy Star Performance







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# ***Energy Conservation Recognition & Reward***

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## **★ Gain Energy Star<sup>®</sup> Qualification**

- Using the Energy Star<sup>®</sup> criteria – corrects for building type, weather, etc.

## **★ ASHE E<sub>2</sub>C to bridge the gap - ProtoStar**

- Focused on Medical Healthcare community
- Recognizes improvement – 10% annual improvement rewarded
- Provides an achievable target – year over year

## **★ AFMS Energy ProtoStar**

- New for 2010 – Committed to reward AFMS Organizations for next 4 years
- Focused on Air Force Medical Healthcare family
- Focused on Energy Conservation strides made





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# *AFMS Energy Award*

**ProtoStar** [proh-toh-stahr] – noun *Astronomy*, an early stage in the evolution of a star.

★ Two Levels of Award

- ★ Gold ProtoStar - Recognize AFMS Single Best (Stellar) Performer
- ★ Blue ProtoStar - Top Five (5) Medical Groups

- ★ Basis for Award – Significant Strides made in Conserving Energy and toward Energy Star *(Not driven purely on Energy Star or E2C Rating, but a blend of those ratings and a clear measureable major change in overall energy performance)*
- ★ Recipients employ strategies and tactics we need to study and model after



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# ***AFMS Energy ProtoStar***

## ***Gold ProtoStar - AFMS "Stellar" Performer***

- ★ 31<sup>st</sup> Medical Group, Aviano IT
- ★ Facility Manager: Manuela Solda
- ★ First Energy Star Recipient on Foreign Soil for EPA
- ★ Rec'd Award from AF/SG
- ★ 15 Point Increase in Energy Star Score from Baseline
- ★ Reduced Energy Use by -41.5%





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# *Common Denominators of the Winners*

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- ★ The Desire to Improve & Conserve (No Cost)
- ★ Commander Involvement & Support (No Cost – BIG Yield)
- ★ Walking around and asking “Does this need to be on?” (No Cost)
- ★ Elimination of floor space heaters & coffee pots at desks (No Cost)
- ★ DOD Set Points, Night and Weekend Setback (No Cost)
- ★ Monitoring Energy Usage (EEM, E-Star, etc) (No Cost)
- ★ Turning Off Lights at Night (No Cost)
- ★ Engineering and SRM Support (No Cost)

*Takeaway: You do not need funding nor ECIP projects to conserve energy and succeed – just the desire and discipline to do so.*



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# *Moving Forward*

## ★ Two sites selected for Retro-commissioning

- Retro-commissioning looks at all building systems (Mechanical, Electrical & Building Envelope)
- Condition assessment, HVAC Testing, Operational Mythologies, Recommendations on how to optimize
- Selection based on E-Star performance:
  - Mountain Home – First Bedded Facility to be surveyed
  - Luke – Extremely close to achieving Energy Star<sup>®</sup> (*A gentle nudge or new idea might be all that's needed to send them over the required score*)



### **Retro-Commissioning Energy Performance Evaluation**

**Mountain Home Composite Medical Facility  
366MDG Building 6000 – Mountain Home, ID**





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# Summing It Up

- ★ We are not on vector with EO and DoD targets - We do know where we are, and we are making progress in the right direction
- ★ New building systems are good, but it's the culture (users) that make the greatest difference in saving energy - not the new equipment.  
*Technology cannot overcome wasteful habits.*
- ★ Leadership and supporting direction is needed - DoD/TMA guide to Energy Use in Healthcare Facilities.
- ★ We shouldn't overlook low or no cost fixes - they work!

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Reward Improvement ProtoStar is the Short



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**Q & A**

# Questions